The Station Editor Graphical User Interface (GUI) for COAMPS-OS™

User's Guide

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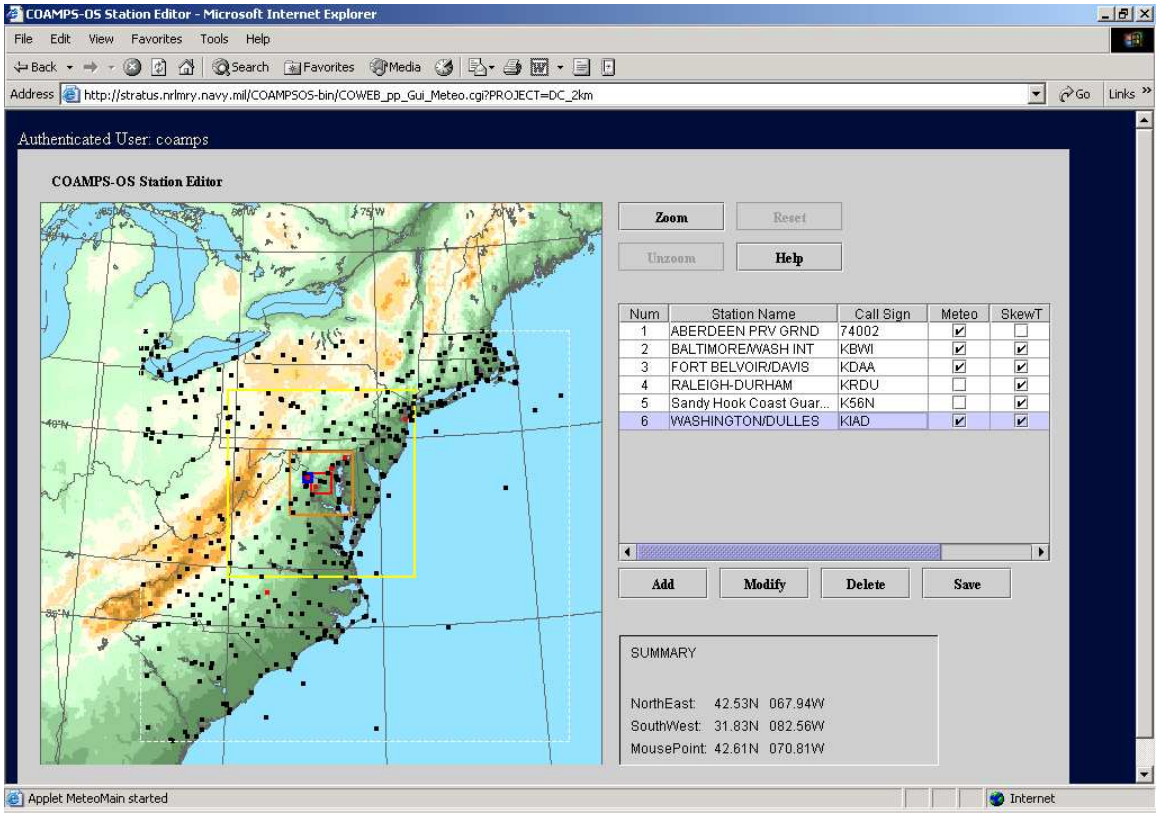

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I. SYSTEM OVERVIEW

1.1 COAMPS-OS

COAMPS-OS is a fully functional automated, portable, atmospheric nowcast/forecast/data assimilation system. COAMPS-OS allows the forward deployed user to make use of the growing volume of perishable atmospheric data available on-scene. COAMPS-OS utilizes either large-scale model or mesoscale model gridded data fields as a first guess. The data fields can be augmented with local observations, satellite data, and other fields provided by a central or regional center.

COAMPS-OS maintains an organic data assimilation capability consisting of automated quality control (QC) software, a multivariate optimum interpolation (MVOI) atmospheric analysis, the COAMPS Ocean Data Assimilation System (CODA), and the COAMPS model. These components are controlled through the COAMPS-OS graphical user interface (GUI), which allows the user to select and visualize customized output. The output data field products from COAMPS are stored in the Tactical Environmental Data Server (TEDS). The COAMPS output fields may be accessed to produce custom visualization products, such as meteograms. For more information on COAMPS-OS, refer to the COAMPS-OS User Manual listed in Section 6 of this document. To obtain the COAMPS-OS software and a list of hardware requirements, contact the Naval Research Laboratory at:

Naval Research Laboratory
7 Grace Hopper Avenue, Stop 2
Monterey, CA 93943

1.2 METEOGRAMS

A meteogram is a graphical representation of the meteorological state of the atmosphere over time at a single geographical point. The visualization component of COAMPS-OS generates meteograms as part of the automated post-processing of COAMPS data.

1.3 SKEW-Ts

A skew-t is a vertical profile of temperature, dewpoint, wind speed, and wind direction at a single geographical point and a single point in time. The visualization component of COAMPS-OS creates skew-t graphics each forecast hour.

1.4 THE STATION EDITOR GUI

The Station Editor GUI is a user-friendly, web-based interface to add or remove stations from a COAMPS-OS project's meteogram/skew-t configuration file. Output selections for each COAMPS-OS project determine the COAMPS data available to generate meteograms and/or skew-t products. Skew-T products are created during each model forecast hour. Meteograms are created following each COAMPS forecast.

The Station Editor GUI allows the user to select WMO stations extracted from TEDS or create user-defined stations for a COAMPS-OS project. The GUI gives the user the ability to select the graphical product type: meteogram and/or skew-t.

A unique feature of the Station Editor GUI is the ability to operate on any computer platform capable of running a web browser. The GUI has been successfully run on multiple Windows platforms (98, 2000, XP), IRIX, Sun Solaris, and Linux using Internet Explorer and Netscape Navigator. Requirements and capabilities of the Station Editor GUI are described in the sections that follow.

II. LAUNCHING THE STATION EDITOR GUI

2.1 SYSTEM AND SOFTWARE REQUIREMENTS

The Station Editor GUI will run on any computer platform with a web browser and the Java Plug-in. Recommended browsers include: **Internet Explorer 5.0** (or higher) or **Netscape 6** (or higher). Recommended versions of Java include the **Java Runtime Environment (JRE) 1.3** (or higher) and **Java Plug-in 1.3** (or higher). Documentation about Java and the latest JRE and Java Plug-in can be found at:

http://java.sun.com

2.2 ACCESSING THE STATION EDITOR GUI

The Station Editor GUI can be opened from the COAMPS-OS homepage. To access the Station Editor GUI, open a web browser and type in the web address (URL) of the COAMPS-OS homepage. The URL will open the local COAMPS-OS homepage. Under the **Applications** column, select **Station Interface** (Fig. 1).

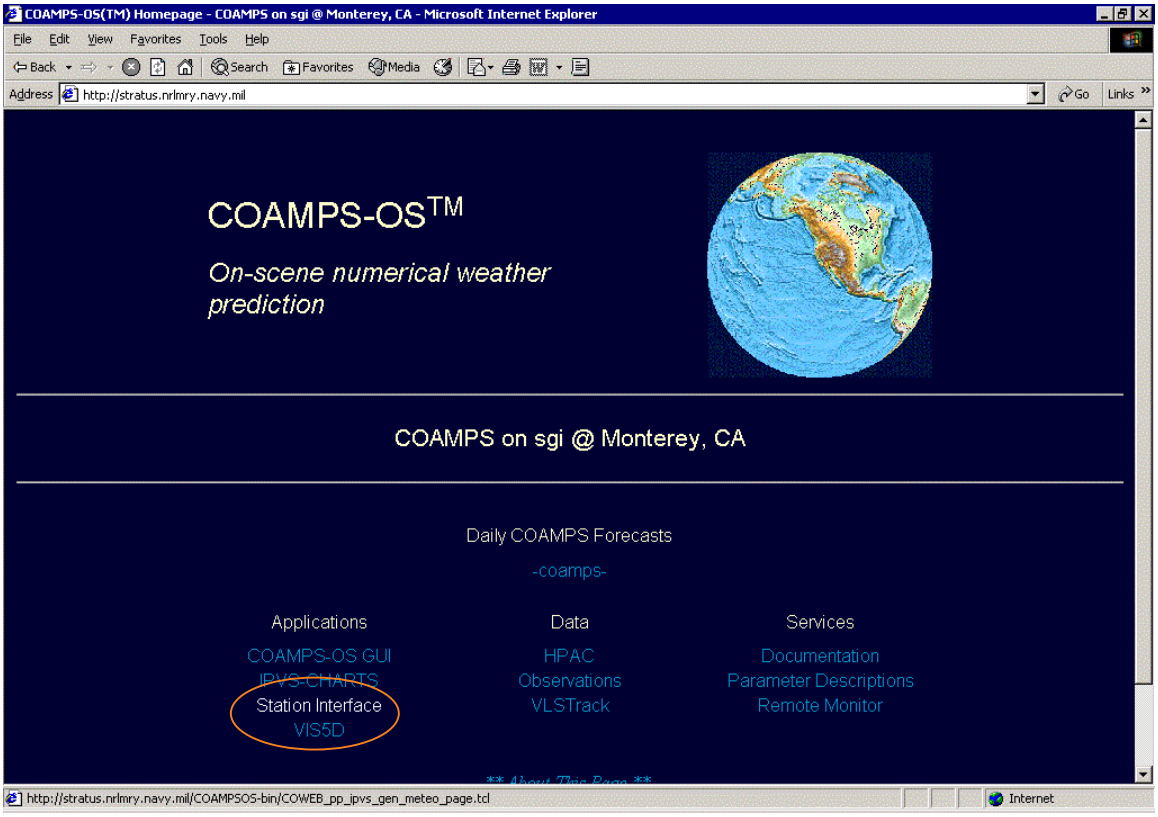

Figure 1. The Station Editor GUI can be accessed from the COAMPS-OS Homepage by selecting the **Station Interface** link. The link is circled in **RED** in Figure 1.

2.3 AVAILABLE REGIONS

After selecting the **Station Interface** link under the **Applications** column, the user will be prompted for a username and password. A username and password can be obtained from the COAMPS-OS Administrator. After entering a valid username and password, the web browser will reload with a web page containing three frames (Fig. 2). Each image in the left frame represents an area defined as a COAMPS-OS project. The project name and last date of modification are shown beneath each image. If the area of interest is not available from the images shown in the left frame, contact the local COAMPS-OS administrator to set up a new COAMPS project. To select an image to load into the Station Editor GUI, click on the image.

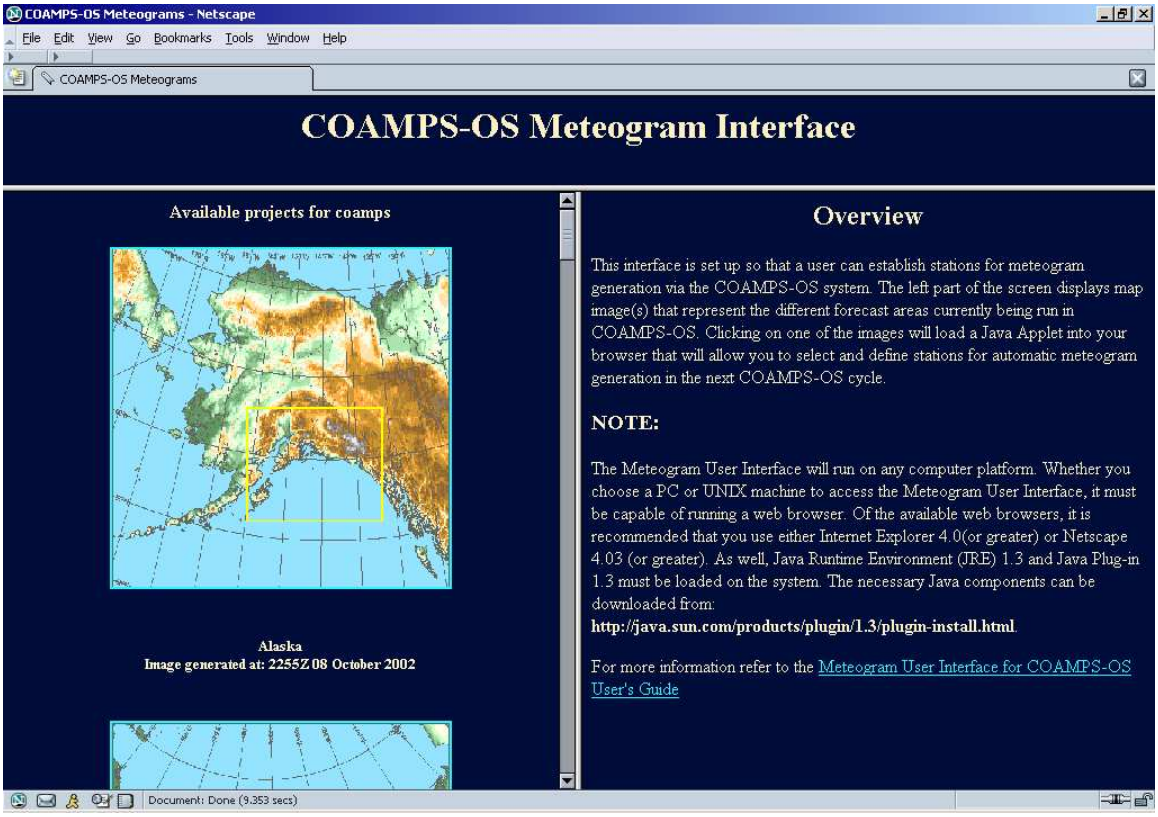

Figure 2. Clicking on an image shown in the left frame starts the COAMPS-OS Station Editor GUI.

2.4 THE STATION EDITOR GUI MAIN SCREEN

After selecting a COAMPS area (Section 2.4), the web browser will load the Station Editor GUI.

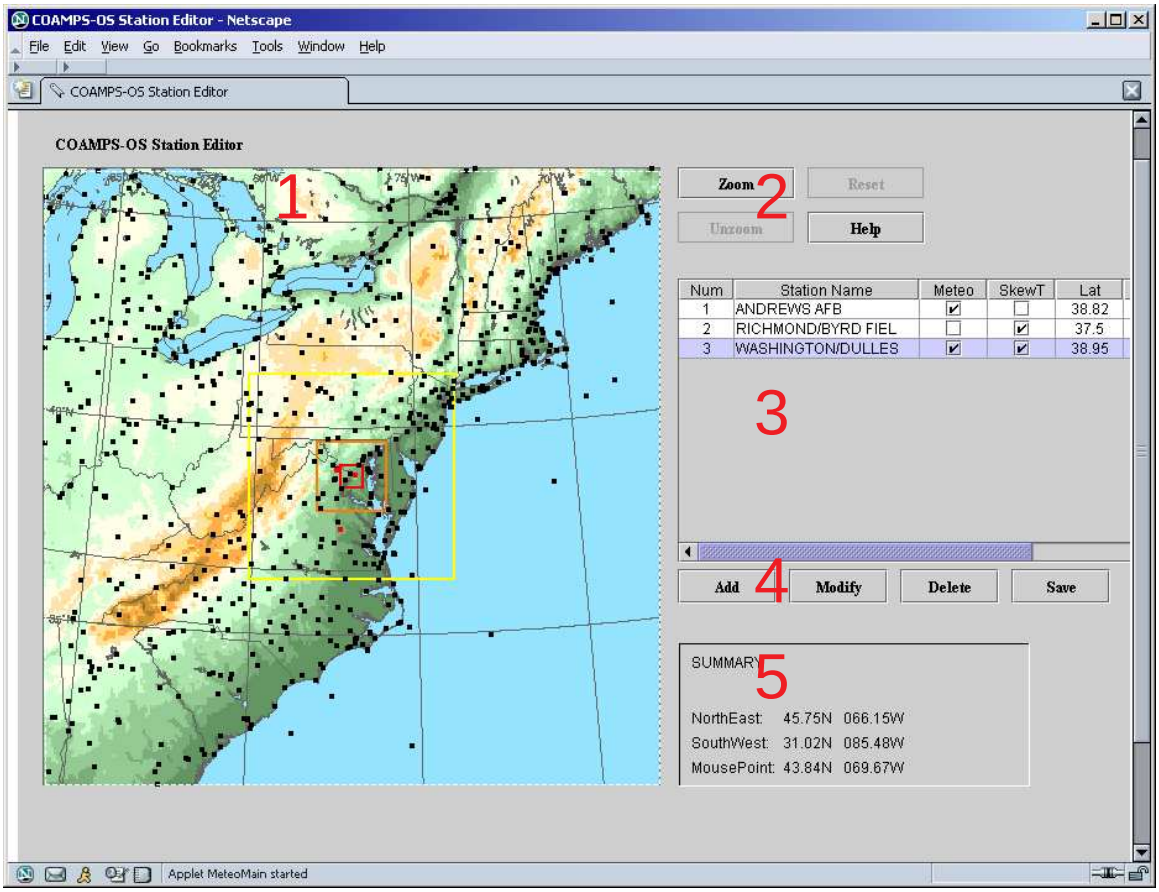

Figure 3. The Station Editor GUI is loaded into a web browser after the user selects an image from the lower right frame shown in Figure 2. The **RED** numbers shown in Figure 3 correspond to descriptions included with Section 2.5.

The Station Editor GUI includes the following components shown in Figure 3:

1. A map image is shown in the left panel of the Station Editor GUI. The Station Editor GUI will modify the configuration file for the selected COAMPS area.

2. Zoom, Unzoom, Reset, and Help buttons are available in the upper right panel.

3. A table of stations is available in the middle section of the right panel. The table lists stations currently defined in the configuration file and information for each station including the latitude, longitude, station id, call sign, and checkbox options for producing meteograms or skew-t products. The table is scrollable to view the contents of each column.

4. The Add, Modify, Delete, and Save buttons are available below the table of stations. The buttons are used to modify the contents of the stations table and save information to the configuration file.

5. A summary information box is available in the lower right panel of the Station Editor GUI. The summary box contains information relative to the map display including the latitude/longitude location of the mouse position and the coordinates of a selected area on the map.

III. USING THE MAP DISPLAY

The Station Editor GUI contains a fully interactive map display to select stations for a COAMPS project.

3.1 STATION LOCATIONS

The Station Editor GUI may require a few seconds to load as the GUI retrieves station names and locations from TEDS. Following the station retrieval, the GUI will show two sets of stations on the map:

1. Stations currently defined in the configuration file (**RED** dots)
2. WMO stations extracted from TEDS (**BLACK** dots)

To view information for a station shown on the map, double-click over a station location. A new window will appear containing information for the selected station.

For some areas, station locations may be clustered too tightly to select the station location of interest. To reduce the clustering of stations, the user may magnify (Zoom-In) the station map as described in Section 3.2. Zooming into a map allows the user to reduce the station density and make station selection easier.

* Note: If the station of interest cannot be found on the map, the user can use a feature in the Station Editor GUI to highlight the station location on the map. See the Section titled, OTHER FEATURES: Highlighting Stations On The Map, for more information.

3.2 SELECTING AN AREA

To select an area for adding stations into the station configuration file, press the left mouse button over the map and move the mouse to create a box bounded by a dashed line (Fig. 4). To modify the size of the box, release the mouse button and move the cursor over the dashed lines so the cursor changes from a single pointed arrow to a double pointed arrow. When the cursor has changed to the double arrow, hold the left mouse button and move the mouse to expand or contract to box. After completing any modifications to the size of the box, release the left mouse button.

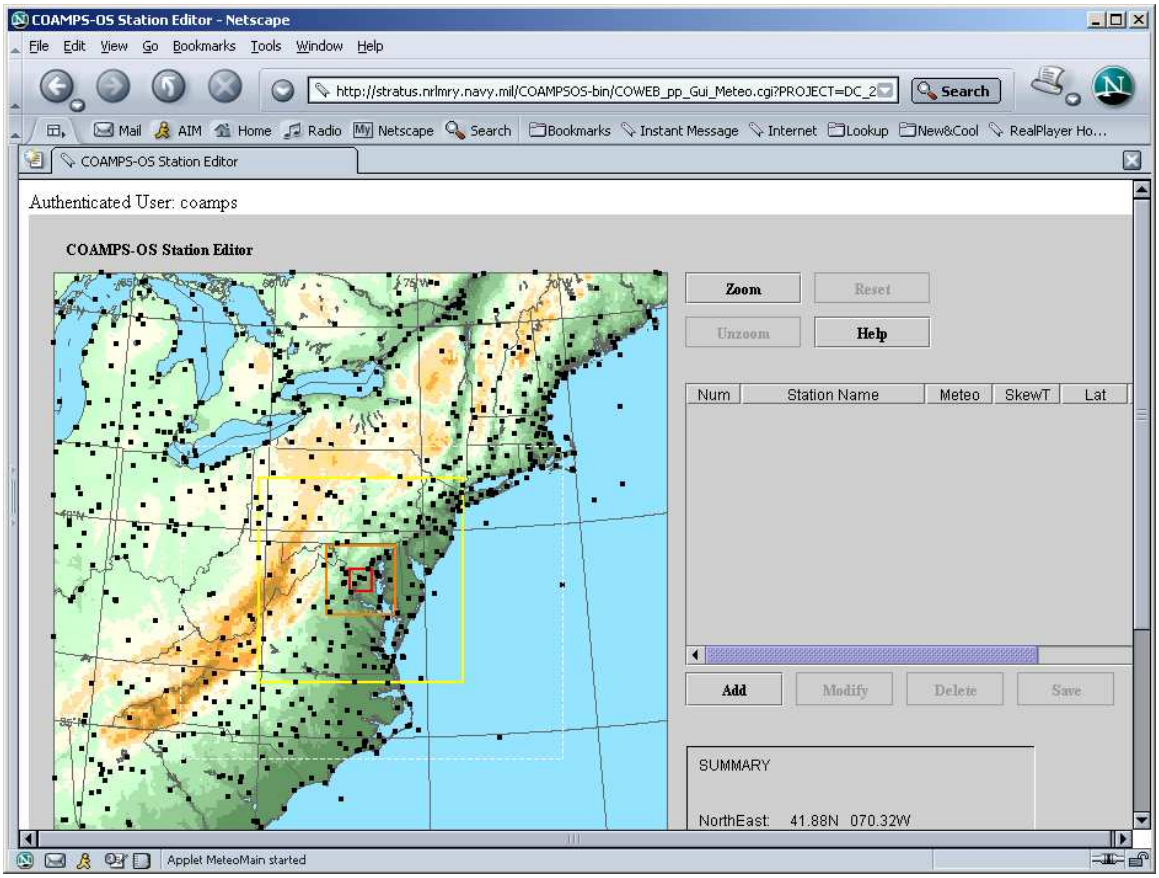

Figure 4. A bounded box with dashed lines is used to select a group of stations to select stations add to the station configuration file.

To move the box, release the mouse button and move the mouse into the box. The cursor will change shape from a single pointed arrow to a symbol with four-arrows pointing in four directions. Press and hold the left mouse button and drag the cursor to move the box until the box is positioned over the area of interest. The **SUMMARY** box will update with the lower left and upper right positions of the box as the box moves. To remove the box, click over the map and outside of the box. The box will disappear.

3.3 ZOOMING AND UNZOOMING

To magnify a section of the map, select an area (see Section 3.2) and press the "Zoom" button. An image of the selected region will appear in the left panel. Although a user may zoom into the map image indefinitely, the highest resolution of the terrain database is four kilometers. To return to a previous image, select the "Unzoom" button. Press the "Reset" button to return to the original map image.

IV. USING THE STATIONS TABLE

The stations table lists stations in the configuration file for the selected COAMPS area. The interface allows the user to add, remove, or modify the stations in the configuration file. The Station Editor GUI provides checkboxes for selecting either meteograms and/or skew-t products for a selected station.

4.1 ADDING STATIONS

To add a station to the station's table, select an area (see Section 3.2) on the map containing the station(s) to add. Click the "Add" button. A new window titled **Available Stations** (Fig. 5) will appear with available stations from TEDS inside the selected area.

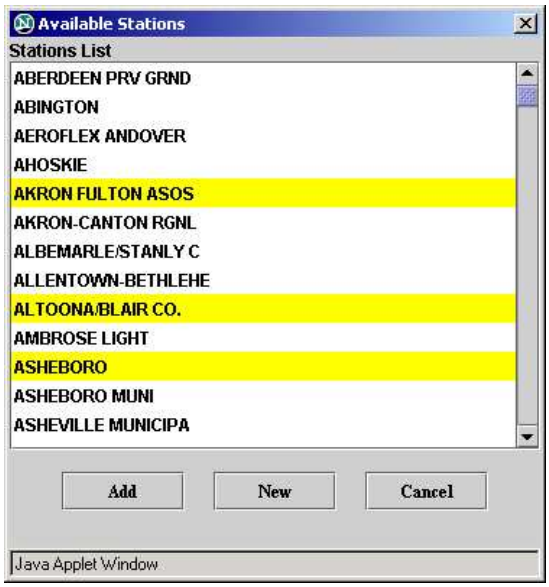

Figure 5. The **Available Stations** window shows a list of WMO stations retrieved from TEDS. The example in Figure 5 shows multiple selections highlighted in yellow.

To add a station, highlight the station name in the list and click the "Add" button. Selected stations are highlighted in yellow (Fig 5). After selecting "Add", the station will be added to the stations table and the **Available Stations** dialog will close.

To add multiple stations from the **Available Stations** window, highlight the stations using the left mouse button and while holding the CTRL key. Upon completion of selecting the stations, click the "Add" button. To select a list of stations, highlight the first station, press and hold the SHIFT key, and click the last station of the group. All the stations between the first and the last station will be highlighted. After clicking the "Add" button, the stations will be added to the stations table, and the **Available Stations** window will close.

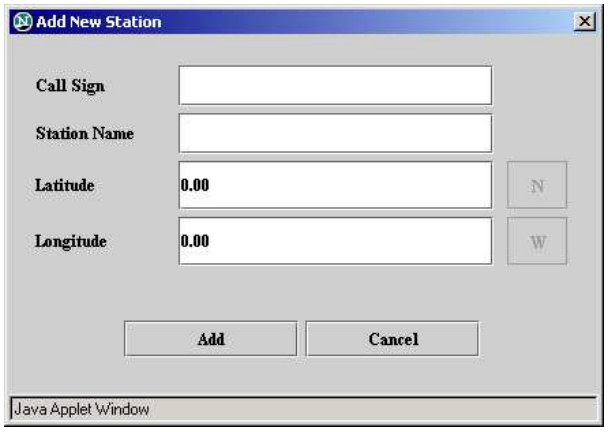

Figure 6. Stations may be added to the listing of **Available Stations** by selecting the **NEW** button on the **Available Stations** window. The window shown in Figure 6 will appear. A new station requires a call sign, name, latitude, and longitude value. The N and W buttons are grayed out because all values of latitude and longitude fall within the Northern and Western Hemisphere for the selected map region.

To define a station that is not listed in the **Available Stations** window, click the "New" button in the **Available Station** window. A window will appear requesting detailed information for the station (Figure 6). Required fields include:

1. Call Sign
2. Station Name,
3. Latitude
4. Longitude

The call sign may be defined using the WMO call sign naming convention, typically four alphanumeric characters. The station name is the full station name best describing the location. The latitude and longitude fields must be entered as numeric values. Directional latitude and longitude buttons will be activated for cases where a choice of North/South or East/West is required for the map area. The GUI will not permit latitude or longitudinal values that fall outside the map area. After entering the required station information, the user may "Add" or "Cancel" the selections. Clicking the "Add" button will add the station to the list in the **Available Stations** window. Selecting "Cancel" will clear the station entries and close the window.

To add stations into the list shown in the Station Editor GUI, select the new station from the list shown in the **Available Stations** window.

4.2 DELETING STATIONS

Two methods are available to delete stations:

1. Right-click over the station. A menu will appear near the mouse cursor (Fig. 7). Select "Delete Station". The station will be removed from the stations table.

2. Highlight the station row on the table by pressing the left mouse button over the row. Select the "Delete" button below the table. The station will be removed from the stations table.

To delete ALL stations from the stations table:

Right-click over the table. A menu will appear near the mouse cursor (Fig. 7). Click "Clear All Stations". All stations will be removed from the stations table.

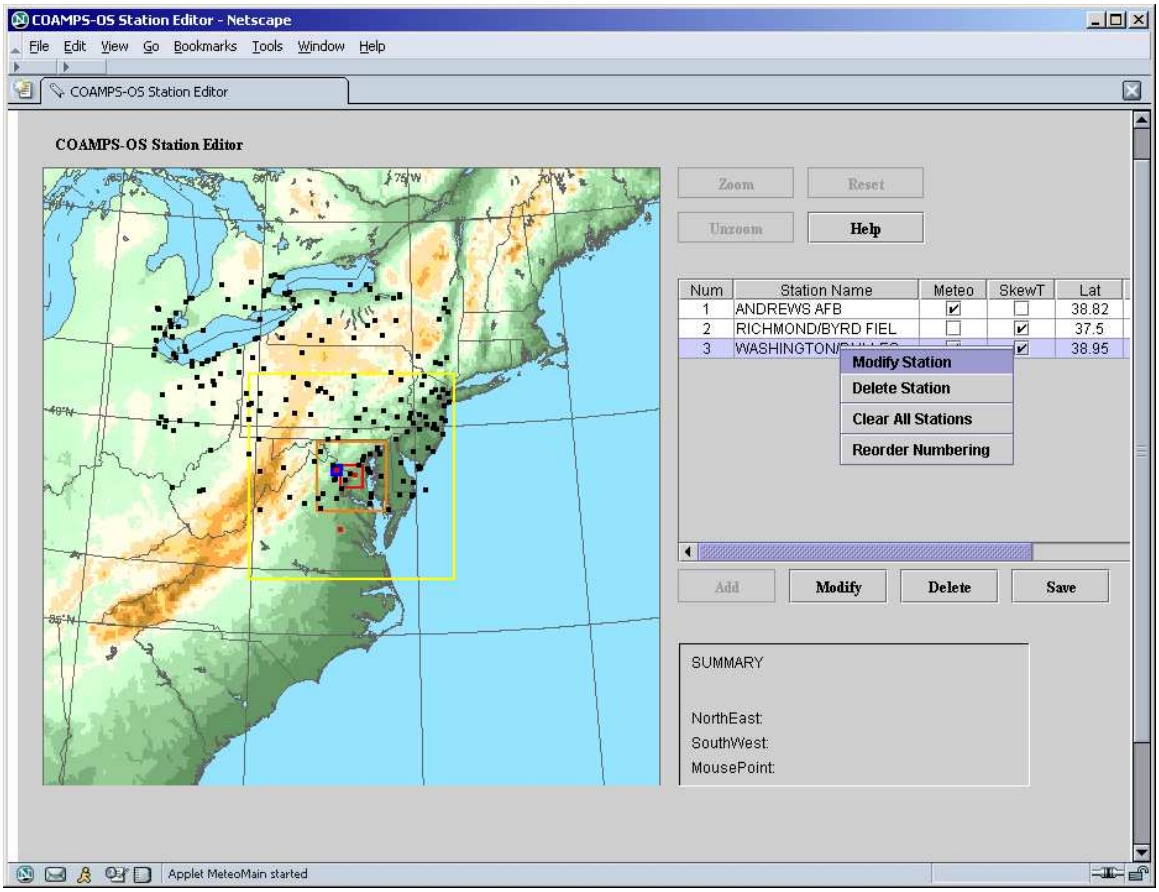

Figure 7. An example of the options menu is shown after a user has clicked the right mouse button over a selected station. The user can select an option from the menu.

4.4 ENABLING/DISABLING PRODUCTS FOR A STATION

Each station in the station table has a unique set of options to define products to be produced for the selected station. To enable meteograms, skew-t's, or both products for a station, click on the checkbox shown in the row of the selected station. To switch the product off, click on the checkbox for the corresponding station until the check disappears.

Num	Station Name	Meteo	SkewT
1	ANDREWS AFB	☑	☐
2	RICHMOND/BYRD FIEL	☐	☑
3	WASHINGTON/DULLES	☑	☑

Figure 8. Users may select options to enable or disable meteograms (**Meteo**) or skew-t (**SkewT**) graphics by selecting a checkbox. In the example shown in Figure 4, meteograms will be produced for ANDREWS AFB and WASHINGTON/DULLES. Skew-T graphics will be created for ANDREWS AFB and WASHINGTON/DULLES.

4.4 MODIFYING A STATION'S INFORMATION

To modify a station's information, use the 'Modify Station Information' dialog. Two methods are available to open the dialog:

1. Right-click on the station to modify the table. A menu will appear near the mouse cursor. Select "Modify Station". The **Modify Station Information** dialog window will appear.

2. Highlight the station on the table by clicking anywhere on its row. Click the "Modify" button below the table. The **Modify Station Information** dialog window will appear.

Both procedures will open the **Modify Station Information** dialog window with the station's information displayed. The call sign, station name, latitude and/or longitude may be modified within the window.

To save the changes, select the "Confirm" button. To discard the changes, click the "Cancel" button.

4.5 OTHER FEATURES

The Station Editor GUI provides additional features to aid users during the station selection/configuration process. The features include:

Station Table Sorting:

Each column of the station table may be sorted alphanumerically. For example, stations can be sorted by name, or the station listing may be sorted the by latitude.

To sort the fields of any column, click over the header of the column. For example, to sort the table by the station name, a user should click on the **Station Name** header. The stations will be sorted in alphabetical order by name.

Re-Order Numbering:

If a user has sorted the contents of the table by any means except using the selection number (indicated as **Num**), the stations may not appear in the same order as the stations will be saved in the configuration file. The **Num** field indicates the position the station will occupy in the configuration file. The ordering of the stations is not necessarily preserved in the order shown in the station list. A following session of the Station Editor GUI might not contain the sorting configuration made within the current session.

To save the ordering of the stations shown in the table and reset the **Num** values:

Right-click on the station table. A dialog window will appear. Click on "Reorder Numbering". The values in the **Num** fields will be renumbered, if necessary, and saved in the order shown in the station list.

Highlighting Stations On The Map:

The Station Editor GUI includes a feature to assist with locating a station on the map by highlighting the station location. Stations can be highlighted from the stations table and the **Available Stations** window opened when using the "Add" procedure. To highlight a station in the station table, click on the row containing the station name. The station on the map will now appear with a blue square border (Fig. 9).

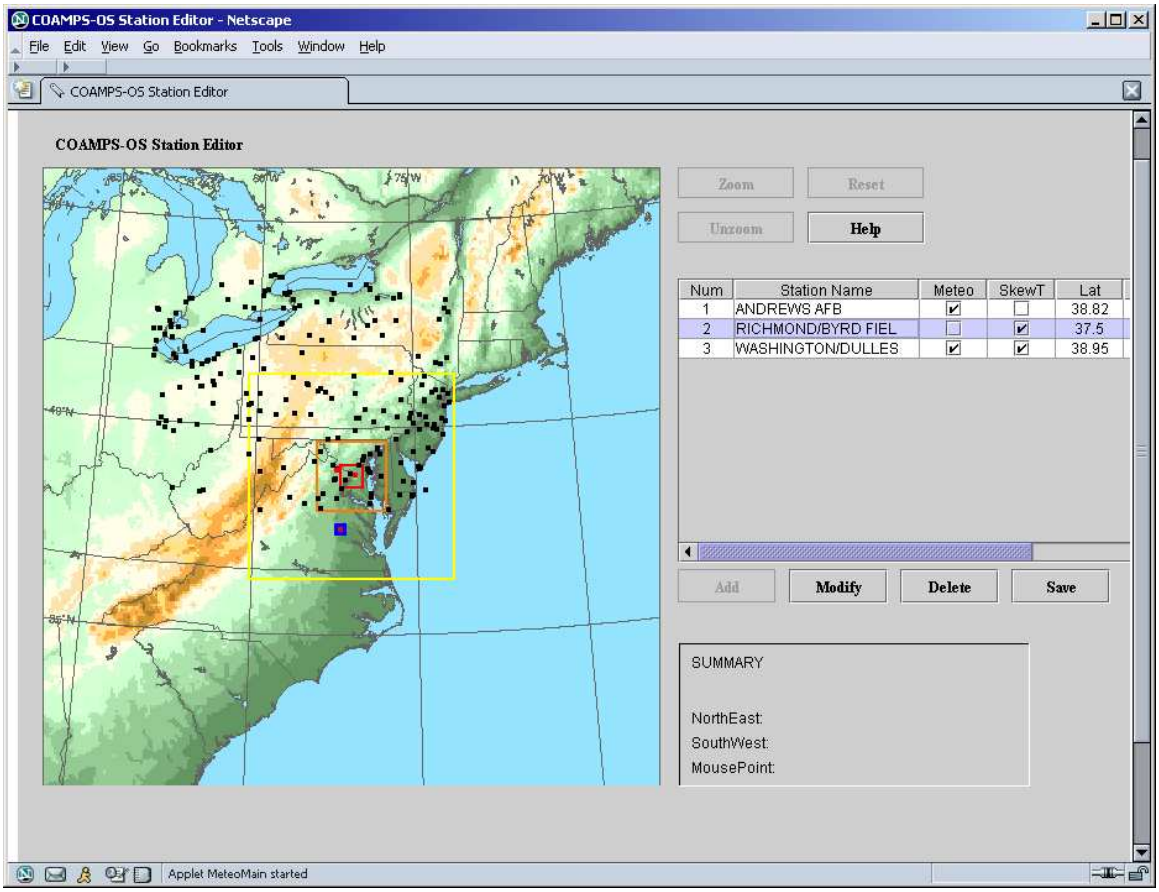

Figure 9. RICHMOND/BYRD FIELD is highlighted with a blue square background on the map image. The station was highlighted by selecting the station value from the station listing shown in the right panel of Figure 5.

To highlight a station from the available stations in TEDS, select an area on the map containing the station to highlight. Click on the "Add" button below the station table. The **Available Stations** window will appear. Search for the station to highlight in the list and click over the station. The station on the map will now appear with a blue square border.

V. SUBMITTING THE CONFIGURATION

After completing all necessary modifications to the stations table, the modifications and station configuration may be saved to the COAMPS-OS server. The "Save" button below the stations table is enabled after changes are made to the table.

To write the information to the configuration file for the COAMPS project, click on the "Save" button. The **Submit Data?** dialog window will appear (Fig. 10). The **Submit Data?** Dialog window contains a summary of the station selections and two buttons to accept (OK) or cancel (Cancel) the changes. The summary includes a list of the stations (station identification number, latitude, longitude, and station name) selected for the project. A backup of the original configuration file is saved to the COAMPS-OS server

prior to accepting any modifications to the station configuration. Select the Cancel button to return to the Station Editor GUI without saving any of the changes.

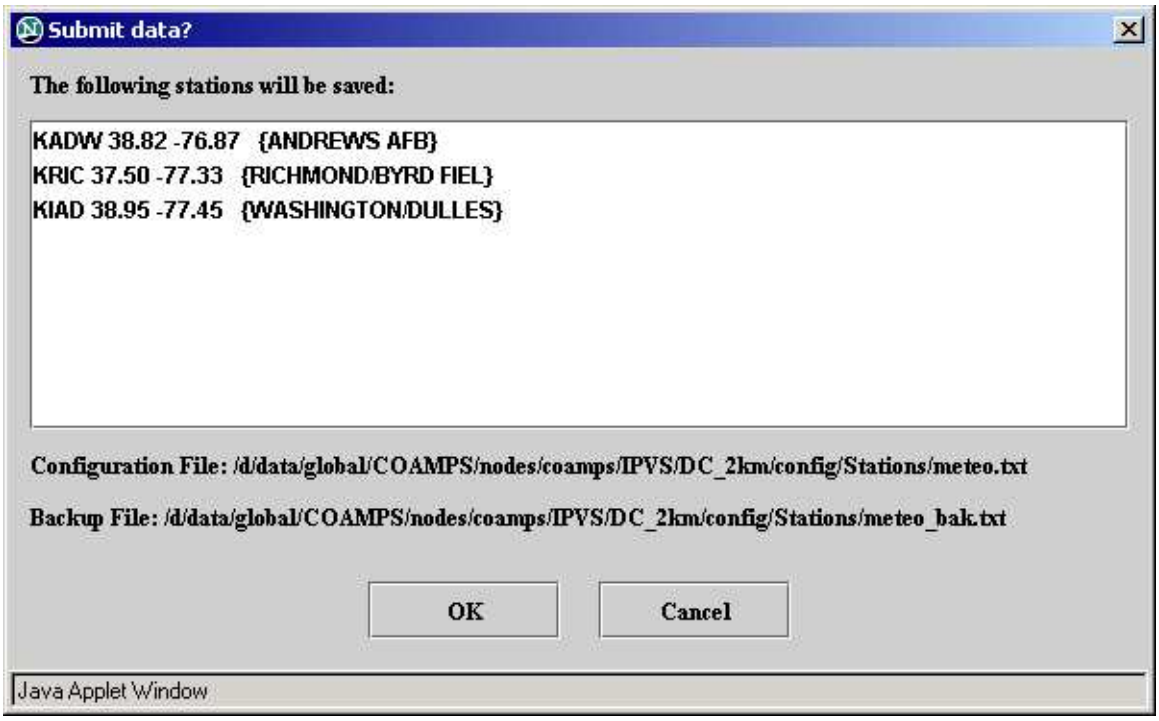

Figure 10. The **Submit Data?** window permits users to view station configuration information prior to saving the information to the COAMPS-OS server.

VI. APPENDIX

6.1 COAMPS-OS REQUIREMENTS

The following output parameters are required from COAMPS to produce complete meteogram graphics. The fields may be set using the COAMPS-OS GUI. The output selection requirements are shown in Table 2-1.

Table 1. Output requirements for producing meteograms are shown in Table 1. Output selections are made using the COAMPS-OS GUI.

Level (meters)	Field Description
2, 10, 305, 500, 610, 915, 1220, 1525, 1830, 2135, 2440, 2745, 3050, 3355, 3660, 3960, 4265, 4570, 4880, 5180, 5485, 5790, 6095, 6400, 6705, 7010, 7315, 7620, 7925, 8230, 8535, 8840, 9145	Air Temperature Dewpoint Depression Modified Refractivity Gradient (1/km) Relative Humidity True U-Velocity Component True V-Velocity Component Water Vapor Pressure